WHAT IS CLAIMED IS:

1. A computerized method for generating height information for an arbitrary-image point on a rectified image from first and second aerial images having respective first and second sets of rational polynomial coefficients (RPCs), such that the first and second aerial images and the rectified image include overlapping image locations, the method comprising:

on the first aerial image, generating a first epipolar line and a first RPC line corresponding to the arbitrary-image point ;

on the second aerial image, generating a second epipolar line and a second RPC line corresponding to the arbitrary-image point;

generating a first intersection point of the first epipolar line and the first RPC line;

generating a second intersection point of the second epipolar line and the first RPC;

associating line and sample coordinates of the first intersection point to respective first and second cubic polynomial equations;

associating line and sample coordinates of the second intersection point to respective third and fourth cubic polynomial equations; and

solving the first, second, third, and fourth cubic polynomial equations to generate a height of the arbitrary-image point.

2. The computerized method of claim 1, wherein the solving step includes simultaneously solving the first, second, third, and fourth cubic polynomial equations to generate a height of the arbitrary-image point.

3. The computerized method of claim 1 further comprising entering the height information on the rectified image to form a topographic image map.

4. The computerized method of claim 1 further comprising:

collecting at least eight conjugate points on the rectified image, the first aerial image, and the second aerial image;

generating a first fundamental matrix relating points on the rectified image to points on the first aerial image; and

generating a second fundamental matrix relating points on the rectified image to points on the second aerial image.

5. The computerized method of claim 4 wherein:

generating the first epipolar line includes multiplying the first fundamental matrix and a matrix for the arbitrary-image point that includes longitude and latitude of the arbitrary-image point; and

generating the second epipolar line includes multiplying the second fundamental matrix with the matrix for the arbitrary-image point.

6. The computerized method of claim 5 wherein the longitude and latitude are normalized longitude and normalized latitude, respectively.

7. The computerized method of claim 4 further comprising generating normalized longitude and normalized latitude for coordinates of the arbitrary-image point.

8. The computerized method of claim 1 wherein:

generating the first RPC line includes inserting a first set of RPCs, longitude and latitude of the arbitrary-image point, and a set of heights into cubic polynomial equations to calculate a first set of points on the first aerial image, wherein the first RPC line is a least squares linear regression fit of the first set of points; and

generating the second RPC line includes inserting a second set of RPCs, longitude and latitude of the arbitrary-image point, and a set of heights into the cubic polynomial equations to calculate a second set of points on the second aerial image, wherein the second RPC line is a least squares linear regression fit of the second set of points.

9. The computerized method of claim 8 wherein the set of heights includes heights above and below a zero height.

10. The computerized method of claim 9 wherein the zero height is that of a WGS-84 ellipsoid.

11. The computerized method of claim 8 wherein the cubic polynomial equations represent a closed form algebraic model of a camera.

12. The computerized method of claim 1 wherein an angle between vantage points of the first and second aerial images is at least 10°.

13. The computerized method of claim 1 wherein an angle between vantage points of the first and second aerial images is at least 20°.

14. A computerized method for generating height information for an arbitrary-image point on a rectified image from first and second aerial images having respective first and second sets of rational polynomial coefficients (RPCs), such that the first aerial image, the second aerial, and the rectified image include overlapping image locations, the method comprising:

generating first and second epipolar lines on the first and second aerial images respectively;

generating first and second RPC lines on the first and second aerial images, respectively;

intersecting the first epipolar line and the first RPC line to generate a first match point of the arbitrary-image point;

intersecting the second epipolar line and the second RPC line to generate a second match point of the arbitrary-image point; and

performing stereo intersection of the first and second match points to generate the height information for the arbitrary-image point.

15. The computerized method of claim 14 further comprising entering the height information on the rectified image to form a topographic image map.

16. A computer program product stored on a computer-readable storage medium for generating height information for an arbitrary-image point on a rectified image from first and second aerial images having respective first and second sets of rational polynomial coefficients (RPCs), such that the first and second aerial images and the rectified image include overlapping image locations, the computer program product comprising:

code for generating a first epipolar line and a first RPC line on the first aerial image, wherein the first epipolar line and first RPC line correspond to the arbitrary-image point;

code for generating a second epipolar line and a second RPC line on the second aerial image, wherein the second epipolar line and the second RPC line correspond to the arbitrary-image point;

code for generating an intersection point of the first epipolar line and the first RPC line, the intersection point of the first epipolar line and the first RPC line being referred to as the first matched point;

code for generating an intersection point of the second epipolar line and the second RPC line, the intersection point of the second epipolar line and the second RPC line being referred to as the second matched point;

code for equating line and sample coordinates of the first matched point to respective first and second cubic polynomial equations;

code for equating line and sample coordinates of the second matched point to respective third and fourth cubic polynomial equations; and

code for simultaneously solving the first, second, third, and fourth cubic polynomial equations to generate a height of the arbitrary-image point.

17. The computer program product of claim 16 further comprising code for entering the height information on the rectified image to form a topographic image map.

18. The computer program product of claim 16 further comprising:

code for collecting at least eight conjugate points on the rectified image, the first aerial image, and the second aerial image;

code for generating a first fundamental matrix relating points on the rectified image to points on the first aerial image; and

code for generating a second fundamental matrix relating points on the rectified image to points on the second aerial image.

19. The computer program product of claim 18 wherein:

the code for generating the first epipolar line includes code for multiplying the first fundamental matrix and a matrix for the arbitrary-image point that includes longitude and latitude of the arbitrary-image point; and

the code generating the second epipolar line includes code for multiplying the second fundamental matrix with the matrix for the arbitrary-image point.

20. The computer program product of claim 19 wherein the longitude and latitude are normalized longitude and normalized latitude, respectively.

21. The computer program product of claim 18 wherein:

the first and second fundamental matrices are 3x3 matrices, and

the matrix for the arbitrary-image point is a 3x1 matrix.

22. The computer program product of claim 18 further comprising code for generating normalized longitude and normalized latitude for coordinates of the arbitrary-image point.

23. The computer program product of claim 16 wherein:

the code for generating the first RPC line includes code for inserting a first set of RPCs, longitude and latitude of the arbitrary-image point, and a set of heights into cubic polynomial equations to calculate a first set of points on the first aerial image, wherein the first RPC line is a least squares linear regression fit of the first set of points; and

the code for generating the second RPC line includes code for inserting a second set of RPCs, longitude and latitude of the arbitrary-image point, and a set of heights into the cubic polynomial equations to calculate a second set of points on the second aerial image, wherein the second RPC line is a least squares linear regression of the second set of points.

24. The computer program product of claim 23 wherein the set of heights includes heights above and below a zero height.

25. The computer program product of claim 24 wherein the zero height is that of a WGS-84 ellipsoid.

26. The computer program product of claim 23 wherein the cubic polynomial equations represent a closed form algebraic model of a camera.

27. The computer program product of claim 16 wherein an angle between vantage points of the first and second aerial images is at least 10°.

28. The computer program product of claim 16 wherein an angle between vantage points of the first and second aerial images is at least 20°.

29. A computerized method for generating height information for an arbitrary-image point on a rectified image, the method comprising:

deriving the height information from first and second aerial images having respective first and second sets of rational polynomial coefficients (RPCs), wherein the first and second aerial images and the rectified image include overlapping image locations.

30. The computerized method of claim 29, wherein the first and second aerial images are not stereographic images.

31. The computerized method of claim 29, further including generating a version of the rectified image that includes the height information.